

pause in this "unionized labor" method of "price fixing" and "working conditions," the public will force "open shop" methods through "collective service enterprises," such as "health insurance," "clinics," "health centers," and what not.

"The Dallas Chronicle agrees that doctors have the same right to fix their fees, a practice usually granted to plumbers and carpenters, and concedes that the doctor is just as necessary to the health of the community as the plumber."

Press clippings indicate an astounding public interest in doctors' "fee schedules," and at the same time a remarkable variety of opinions as to what should and should not be done. So extensive and energetic has been the nationwide reaction to the Washington doctors' fee schedule, that medical leaders would do well to restudy the problem. As stated in our last month's notices, papers in general sympathetic to organized labor practically all endorse the doctors' action and some predict that the next step will be affiliative with the A. F. of L. Other papers, for the most part, criticize the doctors and many of them are bitter in their denunciation. A substantial number of editors point out that it is actions of this sort that makes friends for those who are out to make personal and public health a "public utility" either operated by the state as education now is or operated by great corporations under state supervision. *It is pointed out that doctors appear to be blind to the progress being made in both these directions.*

Of course, most thinking physicians are not "blind" to either what is being done, who is doing it, nor to the plans that are still, for the most part, in the chrysalis stage. The trouble is that doctors are not really organized and there is little to indicate that they can be organized so as to do effective team work. This may or may not be a fault, but in any event it is a fact. It is largely explained by the fact that doctors, by education and in their life's work, are individualists. Their work is highly personal and they are thus personally competitive in the best meaning of that word. The nature of their service is calculated to make dictators out of them, and, as a matter of fact, every doctor, whether he appreciates the fact or not, becomes a benevolent dictator to his clients. It could not well be otherwise—nor should it. However, this spirit so essential in his life's work is calculated to make of him a "bad risk" as an organization man. In the aggregate, he is fine as a leader—when he has time—but he is not strong in accepting the reins of organization, however gently pulled by leaders of his own choice in his own organization, working to uphold and strengthen the cause he serves. In other words, he is a poor private, but a splendid and much-loved captain of those he serves.

We see the results quite clearly in any discussion of "fee schedules" and it is, of course, equally clearly demonstrated with almost any other question that requires both leaders and followers to carry out as a "team measure." *There is not now and never has been an effective "fee schedule" in any county, city or other community.* Only from 30 to 60 per cent of the physicians of the various communities are even members of their medical societies to start with, and

no "fee schedule" has yet been devised and made effective for all of those who are members, to say nothing of the others.

A percentage, not by any means small, of physicians believe that *a personal fee schedule is an essential and indissoluble part of the personal service that physicians render to their patients and clients.*

There are some tens of thousands of physicians who earn their livelihoods from salaries and by other methods and are not interested in fee schedules. Then there are many, many doctors who do their work under forms of commissions, so much per person per month, or so much per unit of service, all being fixed and managed by government, other employers, insurance carriers, officers of organizations or what not, and in no instance subject to control by physicians either individually or collectively.

These are only a few of the many reasons why we, as physicians, ought to rehearse several things pretty extensively among ourselves before we tackle the big Berthas of business and organization on the one hand, and the emotional, uncertain and fickle jade, public opinion, on the other, with important matters of organization policy and public welfare.

#### LEAD POISONING FROM ETHYL GASOLINE

Probably no other metal is used in so many different forms and on so vast a scale as is lead. The result is that actual and potential poisoning from lead is greater than from any other metal. It is greater today than at any previous time in the history of civilization. Various aspects of lead poisoning were discussed in a symposium before the Section of Pharmacology and Therapeutics of the American Medical Association in Chicago last June and also previously in these columns. These discussions leave the impression that much still remains to be learned about the nature and the treatment of lead poisoning. Until recently very little has been said about possible poisoning from the organic compound, lead tetraethyl, in its new rôle.

Lead tetraethyl is being used extensively as a constituent of "ethyl gasoline" and of various trademarked "anti-knock" mixtures. According to a recent investigation of the Bureau of Mines of the Department of the Interior in Pittsburgh, Pa., "ethyl gasoline" is ordinary motor gasoline to which has been added about 0.04 per cent of lead tetraethyl and 0.06 per cent ethylene dibromide by volume. The object of the lead tetraethyl is to eliminate the detonation or "knock" in internal combustion engines, thereby increasing the economy of fuel consumption and the mileage per gallon of gasoline and permitting the designing of more efficient engines. During combustion, the lead tetraethyl is converted in the presence of a halogen carrier, ethylene dibromide or trichlorethylene, to lead bromide or chloride, which is non-volatile, insoluble, and mostly deposited in the engine head and exhaust pipe in the form of scale or white deposit. The remainder is discharged with the exhaust gases, the larger particles falling to the floor or street, and the very small ones (approximately the size of smoke particles) remain suspended in the air. In addition, a good deal of the lead forms a sulphate, the sulphur coming from the

gasoline; some occurs as oxide, and a small amount as metallic lead. Hence, there is a possibility of lead poisoning from inhalation of atmosphere containing the exhaust gases. Another possibility is from handling the "ethyl" products and gasoline, owing to pulmonary and skin absorption.

The toxicological work of the Bureau of Mines deals with exhaust gases from engines using ethyl gasoline as commercially sold. The exposures were made to simulate the worst conditions as to time of exposure and concentration of gas in the air to which persons might be exposed without being poisoned by the carbon monoxide of the exhaust gases. The tests were continued over a period of eight months in order to bring out cumulative effects. Several species of animals (dogs, rabbits, monkeys, guinea pigs, and pigeons) were exposed for certain periods (up to six hours daily). Observations of growth, body weight, blood changes, symptoms of lead poisoning, pathological changes and lead storage in organs were also made. The amount of lead retained by men inhaling lead dust was also determined.

As far as retention of lead by human subjects was concerned, it was found that the inhalation of from 0.018 to 0.293 mgm. lead per cubic foot of inhaled air caused a retention of from 0.002 to 0.049 mgm. per cubic foot, or a range of from 8 to 27 per cent, average 15 per cent. It is stated that this behavior of the lead that remains in the air as suspended matter greatly reduces the dangers of lead poisoning. The investigators appear to regard the lead retention studied by their method as indicating pulmonary retention, but they also mention the possibility of retention in the nasal passages and throat and of swallowing or expectoration of the lead. The exact path of absorption is practically immaterial, because absorption of lead can occur from both the pulmonary and gastro-intestinal tracts. Probably the gastro-intestinal tract is of greater importance in man from the facts that contact with the hands after handling of lead is frequent and that certain investigators have demonstrated poisoning from the inhalation of a more volatile metal than lead, namely, mercury, without recognition of the metal in the lungs. Symptoms of chronic lead poisoning in man may develop only after continued exposure for months and years. Under modern conditions of intensive use of motor vehicles, for instance, in large and congested cities or on congested highways which teem with automobiles stirring the leaded dust and smoke for miles, day and night, the possibilities of both acute and chronic poisoning are apparent. In California, the passage of 60,000 automobiles in a day past a given point on a certain highway has been reported several times, and in this region the mitigating influences of rains and other weather conditions on the leaded dusts, etc., for the greater part of the year are absent. This puts the hazard of lead poisoning in a still different and menacing aspect.

As far as the exposure of animals to the different concentrations of lead that were used in the Bureau of Mines is concerned, poisoning, together with other changes in blood, body weight, etc., were negligible. Control or unexposed animals showed about the same changes, so that any changes could not be

attributed to the lead of the exhaust gases. With the exception of animals dying from causes ascertained to be other than lead, all remained normal as to activity, growth, appetite, and general signs of health. Any symptoms occurring were dismissed as not being in accordance with chronic lead poisoning. However, a period of eight months seems hardly long enough for ultimate determination of changes and symptoms of chronic poisoning, and the Bureau is continuing observations of certain animals for longer periods. It was found that lead storage in twenty-five analyses of carcasses, excepting digestive tract and skin, was of no significance from the standpoint of lead poisoning. The majority of the analyses showed 0.003 mgm. of lead in 100 gms. of body tissue, a quantity similar to that of unexposed or control animals. The investigators mention that considerably larger quantities (0.9, 2.08 mgm., etc.) than found in animals have been reported as occurring in proportionate weights of human tissue from individuals having no symptoms of plumbism and no recent exposure to lead. This suggests the possibility that ultimately lead may be regarded as a normal constituent of the tissues and excreta.

The results of the Bureau of Mines and other investigators indicate that lead is a constant constituent of unpoisoned and apparently normal animals, though it probably was not intended that way by nature. Such animals must have been, and perhaps most of us are, exposed to lead at some time. Even if man is not directly exposed to the metal, lead may conceivably occur in his tissues. An increase in the indirect occurrence perhaps may be looked forward to, for when the extensive and increasing use of motor vehicles, flying machines, etc., is contemplated, the spraying of our vast countryside with lead gives pause for thought. The leaded vegetation consumed by animals will produce stores of lead later to be consumed with meat, to say nothing of the direct consumption of certain leaded vegetables by man. In this connection, the reports of certain British veterinarians on the occurrence of lead poisoning in grazing cattle, in poultry, etc., and of the poisoning of land are of interest. This shows the problem of chronic lead poisoning in its larger proportions. The Bureau of Mines concludes that the only danger of lead poisoning from products of combustion from ethyl gasoline seem to be confined possibly to the mechanic who is continually cleaning carbon from motors, and although this is but a possibility, it merits precaution. In summing up the investigation it is stated that there has been no indication of plumbism in any of the animals used, though they were exposed for 188 days during a period of approximately eight months to exhaust gases from "ethyl gasoline" in concentrations with respect to lead content that are several times that allowable from the standpoint of carbon dioxide. Further work on lead poisoning in dogs and monkeys, and which it is hoped will cover the desired feature of greater chronicity, will be looked forward to.

It should be added that lead triethyl, which is closely related to lead tetraethyl, is poisonous to animals, but only after some time. That is, the lead is liberated gradually, and the occurrence of serious

symptoms is delayed. This was the compound originally used by Harnack in 1878 for producing experimental chronic lead poisoning. Further investigation along different lines may reveal, therefore, that lead tetraethyl, as a constituent of "ethyl gasoline" and similar mixtures, is a greater hazard than appears at present. When the difficulties of the diagnosing of early lead poisoning are borne in mind, the entire subject is certainly far from being closed. On the contrary, certain approaches are just being made, and, if confirmed and extended, may ultimately give a better understanding of the nature, prevention and treatment of chronic poisoning in man.

1. Sayers, R. R.; Fielding, A. C.; Yant, W. P.; Thomas, B. G. H., and McConnell, N. J.: Exhaust Gases from Engines Using Ethyl Gasoline. Reports of Investigations, Department of the Interior, Bureau of Mines, Serial No. 2661, Dec., 1924.

2. Craig: Vet. J., 1924, 80:26; Gimmell: Vet. J., '24, 80:45; Gardner: Vet. J., '24, 80:13.

3. Harnack: Arch. exp. Path. Pharm., 1878, 9:152.

### THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA. CALIFORNIA MEDICAL ASSOCIATION

The above old and new titles of our state association form a baffling and elusive puzzle to the general membership of the California Medical Association. It recalls our childhood struggle to decide if Ernest Seton-Thompson was Ernest Thompson-Seton, or some other Ernest.

By a differential diagnosis, the points of similarity and of dissimilarity may be pointed out and the blurred picture become clearly defined.

#### POINTS OF SIMILARITY

1. Both the California Medical Association and The Medical Society of the State of California have been titles used for our state association.

2. Both societies have the same dues and the same fiscal year.

3. Both societies use the same secretary and almost the same membership cards.

#### POINTS OF DISSIMILARITY

1. The California Medical Association is the present name of our state association. The Medical Society of the State of California is the former name of the state society, now used by a society formed of a group of members of the California Medical Association who desired optional medical defense furnished by the legal staff of the state association.

2. The dues of the California Medical Association are paid to county secretaries. They are NEVER PAID TO THE STATE SECRETARY. The dues for optional medical defense are paid direct to the secretary of The Medical Society of the State of California who, to add to the confusion, is one and the same as the state secretary.

3. The stationery, membership cards, assessment statements, etc., of the state association are printed on white paper. The stationery, membership cards, assessment statements, etc., of optional medical de-

fense furnished by The Medical Society of the State of California are printed on brown paper.

#### SUMMARY

Pay California Medical Association dues and also your county dues at one time to your county secretary; pay your optional medical defense dues to The Medical Society of the State of California, with offices at 1016 Balboa building, San Francisco.

### THE ATLANTIC CITY SESSION OF THE A. M. A.

#### Reduced Railroad Fare to Atlantic City

The rate of one and one-half fare for the benefit of members and Fellows of the American Medical Association who will attend the annual session in Atlantic City, May 25-29, has been granted by the railroads. The member, when purchasing his ticket pays the full one-way fare to Atlantic City, at the same time securing his certificate from the railroad agent. This certificate will be approved at Atlantic City by the secretary of the association, must be validated by a representative of the railroads, and will then entitle the holder to a return ticket at one-half fare. The validation desk will be located near the Registration Bureau on the Steel Pier.—A. M. A. Journal, February 14, 1925.

### CALIFORNIA PIONEERS IN PHYSIO- THERAPY DEVELOPMENT

Hahnemann Hospital of the University of California did pioneer work in establishing a large, well-equipped physiotherapy department, with doctors to prescribe and trained physiotherapists to apply these instructions in the treatment of disease on a large scale.

Stanford University Medical School did pioneer work in establishing the first scientific course for the training of physiotherapy technicians. The California Association of Physiotherapists again were so far-seeing in their method of organization that their constitution and by-laws have largely been adopted elsewhere and by their national association. Columbia University has recently added courses of instruction modeled upon those of Stanford, and hospital physiotherapy departments modeled upon the one at Hahnemann are now widely scattered.

We have only recently heard that Robert A. Kilduffe has resigned his position as Medical Director of the Los Angeles branch of the Pacific Wassermann Laboratories, and contemplates returning to the East. Though Dr. Kilduffe has been in this state but a comparatively short time, he has firmly established his reputation as a careful and reliable serologist, as well as a laboratory worker from whom valuable contributions could be expected in his chosen field. As a matter of fact, the employment of men of the type of Dr. Kilduffe can only redound to the benefit of institutions seeking the patronage of reputable physicians, who in turn fully appreciate the value and limitations of laboratory assistance in their work, and know full well that only too often many so-called technicians employed in commercial laboratories are incompetent, untrained youngsters, far better equipped to act as messengers or janitors than as serologists. We almost feel that the profession in Los Angeles must have neglected its opportunities in permitting Dr. Kilduffe to leave their midst. It might be interesting to hear from them as to his reasons for going. Possibly the Pacific Wassermann Laboratories might throw some light on the matter.

Is It Too Late to Begin?—"It is useless to look to the courts alone for any material help in dealing with cults, double standards of professional education requirements, or the perpetration of frauds by crooked doctors. *The first thing to do in every state is to procure an act of the legislature that will reflect wisdom and justice,*" is the opinion of H. E. Kelly of the Chicago bar.